

AMENDMENTS TO THE CLAIMS

Please amend Claims 58, 62, 66 and 67; and, add new Claims 71-73 as follows.

LISTING OF CLAIMS

1.-4. (cancelled)

5. (previously presented) A method of determining handoff timing parameters in a wireless device, comprising:

- a) measuring a call characteristic;
- b) determining if the call characteristic is relevant to current conditions at a mobile station;
- c) in response to determining that the call characteristic is relevant, determining, at the mobile station, an adapted value for handoff timeout based on the call characteristic;
- d) setting the handoff timeout to the adapted value; and
- e) deciding to send a handoff request if the handoff timeout expires;

wherein

- determining the adapted value includes;
- determining a predicted handoff performance;
- determining the adapted value for the handoff timeout based on the predicted handoff performance; and
- determining the adapted value includes applying an adaptation function to a current value of the handoff timeout.

6. (original) The method of Claim 5 wherein the adaptation function limits the adapted value between a maximum value and a minimum value.

7. (original) The method of Claim 5 wherein the adaptation function is selected from the group consisting of a linear function, a multi-order function, incrementing or decrementing by a fixed quantity, and selecting a value from a lookup table.

8. (previously presented) A method of determining handoff timing parameters in a wireless device, comprising:

- a) measuring a call characteristic;
- b) determining if the call characteristic is relevant to current conditions at a mobile station;
- c) in response to determining that the call characteristic is relevant, determining, at the mobile station, an adapted value for handoff timeout based on the call characteristic;
- d) setting the handoff timeout to the adapted value; and
- e) deciding to send a handoff request if the handoff timeout expires;

wherein

determining the adapted value includes;

determining a predicted handoff performance;

determining the adapted value for the handoff timeout based on the predicted handoff performance; and

the step of determining the adapted value includes setting the handoff timeout value to a nominal value within a range of values.

9. (previously presented) A method of determining handoff timing parameters in a wireless device, comprising:

- a) measuring a call characteristic;
 - b) determining if the call characteristic is relevant to current conditions at a mobile station;
 - c) in response to determining that the call characteristic is relevant, determining, at the mobile station, an adapted value for handoff timeout based on the call characteristic;
 - d) setting the handoff timeout to the adapted value;
 - e) deciding to send a handoff request if the handoff timeout expires;
- and

setting the handoff timeout value to a default value if the call characteristic is not relevant to current conditions.

10. (original) The method of Claim 9 wherein the default value is selected from the group consisting of a minimum value, a maximum value, a mid-point value between the minimum value and maximum value, and a specified nominal value.

11. (cancelled)

12. (previously presented) A method of determining handoff timing parameters in a wireless device, comprising:

- a) measuring a call characteristic;
 - b) determining if the call characteristic is relevant to current conditions at a mobile station;
 - c) in response to determining that the call characteristic is relevant, determining, at the mobile station, an adapted value for handoff timeout based on the call characteristic;
 - d) setting the handoff timeout to the adapted value;
 - e) deciding to send a handoff request if the handoff timeout expires;
- and
- receiving a range of adapted values of handoff timeout; and limiting the adapted value of the handoff timeout to within the range of adapted values.

13. (cancelled)

14. (previously presented) A method of determining handoff timing parameters for a wireless device, comprising:

- a) measuring a call characteristic;
- b) determining if the call characteristic is relevant to current conditions at a mobile station;

- c) if the call characteristic is relevant;
 - i) determining a predicted handoff performance; and
 - ii) determining, at the mobile station, an adapted value for handoff timeout based on the predicted handoff performance;
 - iii) setting the handoff timeout, at the mobile station, to the adapted value;
- d) if the call characteristic is not relevant, setting the handoff timeout to a default value, and
- e) deciding to send a handoff request if the handoff timeout expires.

15. (original) The method of Claim 14 wherein the call characteristic is selected from the group consisting of handoff frequency, energy level crossing, motion of the wireless device, energy variance, and signal quality.

16. (original) The method of Claim 14 wherein determining the predicted handoff performance includes;

- collecting statistics of the call characteristic; and
- computing the predicted handoff performance based on the call characteristic statistics.

17. (original) The method of Claim 14 wherein determining the adapted value includes applying an adaptation function to the current value of the handoff timeout.

18. (original) The method of Claim 17 wherein the adaptation function limits the adapted value between a maximum value and a minimum value.

19. (original) The method of Claim 17 wherein the adaptation function is selected from the group consisting of a linear function, a multi-order function, incrementing or decrementing by a fixed quantity, and selecting a value from a lookup table.

20. (original) The method of Claim 14 wherein the default value is selected from the group consisting of a minimum value, a maximum value, a mid-point value between the minimum value and maximum value, and a specified nominal value.

21.-36. (cancelled)

37. (previously presented) A system for performing handoffs in a wireless communication network, comprising:

a) a mobile station executing a dynamic handoff timeout algorithm for adapting a handoff timeout value; and

b) a plurality of base stations wherein at least one of said plurality of base stations communicates with the mobile station using a parameter configuration protocol for communicating parameters for use by the dynamic handoff algorithm from at least one of the plurality of base stations to the mobile station; wherein

the mobile station measures a call characteristic;

the adapting a handoff timeout value is based on the call characteristic;
and

at least one of said base stations generates a pilot having an energy level;
and wherein said dynamic handoff timeout algorithm decrements said handoff timeout value for the pilot if said mobile station predicts, based on said call characteristic that said pilot energy level will be below a threshold for a time greater than a maximum allowed handoff timeout value.

38. (original) The system of Claim 37 wherein said maximum allowed handoff timeout value is multiplied by a hysteresis factor before said mobile station predicts.

39. (previously presented) A system for performing handoffs in a wireless communication network, comprising:

a) a mobile station executing a dynamic handoff timeout algorithm for adapting a handoff timeout value; and

b) a plurality of base stations wherein at least one of said plurality of base stations communicates with the mobile station using a parameter configuration protocol for communicating parameters for use by the dynamic handoff algorithm from at least one of the plurality of base stations to the mobile station; wherein

the mobile station measures a call characteristic;

the adapting a handoff timeout value is based on the call characteristic;

at least one of said base stations generates a pilot having an energy level;

and

said dynamic handoff timeout algorithm increments said handoff timeout value for the pilot if said mobile station predicts, based on said call characteristic, said pilot energy level will be below a threshold for a time less than a maximum allowed handoff timeout value.

40. (original) The system of Claim 39 wherein said maximum allowed handoff timeout value is multiplied by a hysteresis factor before said mobile station predicts.

41.-43. (cancelled)

44. (previously presented) A system for performing handoffs in a wireless communication network, comprising:

a) a mobile station executing a dynamic handoff timeout algorithm for adapting a handoff timeout value; and

b) a plurality of base stations wherein at least one of said plurality of base stations communicates with the mobile station using a parameter configuration protocol for communicating parameters for use by the dynamic handoff algorithm from at least one of the plurality of base stations to the mobile station; wherein

the mobile station measures a call characteristic;

the adapting a handoff timeout value is based on the call characteristic;

the mobile station executes pilot set maintenance and maintains pilot drop timers, and wherein the call characteristic is a pilot energy; and

the mobile station further determines a relevant history that limits said adaptation algorithm to use a default value when said call characteristic is not currently relevant.

45. (original) The system of Claim 44 wherein relevance of said call characteristic is a function of the time since the last handoff of a plurality of pilots.

46. (original) The system of Claim 44 wherein said default value is selected from the group consisting of a minimum value, a maximum value, a mid-point value between the minimum value and maximum value, and a specified nominal value.

47. (previously presented) A system for performing handoffs in a wireless communication network, comprising:

a) a mobile station executing a dynamic handoff timeout algorithm for adapting a handoff timeout value; and

b) a plurality of base stations wherein at least one of said plurality of base stations communicates with the mobile station using a parameter configuration protocol for communicating parameters for use by the dynamic handoff algorithm from at least one of the plurality of base stations to the mobile station; wherein

said dynamic handoff timeout algorithm is implemented in said mobile station.

48. (cancelled)

49. (previously presented) A system for performing handoffs in a wireless communication network, comprising:

a) a mobile station executing a dynamic handoff timeout algorithm for adapting a handoff timeout value; and

b) a plurality of base stations wherein at least one of said plurality of base stations communicates with the mobile station using a parameter configuration protocol for communicating parameters for use by the dynamic handoff algorithm from at least one of the plurality of base stations to the mobile station; wherein

said parameters communicated by said parameter configuration protocol include a Nominal Handoff Timeout value and a Handoff Timeout Deviation value which are used to specify the end-points of a range of allowed values for said adapted handoff timeout as follows:

$$[\text{Nominal Handoff Timeout} \times (1 - 2^{\text{Handoff Timeout Deviation}})] \text{ and } [\text{Nominal Handoff Timeout} \times (1 + 2^{\text{Handoff Timeout Deviation}})].$$

50. (previously presented) A system for performing handoffs in a wireless communication network, comprising:

a) a mobile station executing a dynamic handoff timeout algorithm for adapting a handoff timeout value; and

b) a plurality of base stations wherein at least one of said plurality of base stations communicates with the mobile station using a parameter configuration

protocol for communicating parameters for use by the dynamic handoff algorithm from at least one of the plurality of base stations to the mobile station; wherein

said parameters communicated by said parameter configuration protocol include parameters selected from the group consisting of a nominal handoff timeout value, a range of handoff timeout values about a nominal handoff timeout value, a maximum handoff timeout value, a minimum handoff timeout value, an index into a table of parameter configurations stored in said mobile station, a plurality of inputs to a plurality of formulae that indirectly determine the values of parameters, a minimum time since the mobile station last dropped, a hysteresis compensation factor, an adaptation value to increment the handoff timeout value, and an adaptation value to decrement the handoff timeout value.

51. (cancelled)

52. (previously presented) A system for performing handoffs in a wireless communication network, comprising:

a) a mobile station executing a dynamic handoff timeout algorithm for adapting a handoff timeout value; and

b) a plurality of base stations wherein at least one of said plurality of base stations communicates with the mobile station using a parameter configuration protocol for communicating parameters for use by the dynamic handoff algorithm from at least one of the plurality of base stations to the mobile station; wherein

said mobile station stores said parameters for later use by said adaption algorithm.

53. (original) A method for testing a dynamic handoff timeout algorithm used within a wireless communication system, comprising:

- a) communicating a plurality of test inputs representing channel signals to a mobile station, each of the plurality of test inputs having an energy level;
- b) communicating dynamic handoff timeout algorithm parameters to said mobile station;
- c) operating said mobile station in call mode using said test inputs;
- d) periodically varying the energy level of at least one of the plurality of test inputs above a pilot add threshold and below a pilot drop threshold;
- e) performing said dynamic handoff timeout algorithm;
- f) monitoring handoffs and handoff timing associated with the mobile station; and
- g) comparing said handoffs and handoff timing to a minimum performance reference.

54. (original) The method of Claim 53 further comprising varying the time said energy level of at least one of said plurality of test inputs is above said add threshold and below said drop threshold.

55.-57. (cancelled)

58. (currently amended) A method for executing a handoff operation in a mobile station, comprising:

scanning a pilot signal of predetermined system frequencies;

measuring an energy level of the pilot signal;

selecting at the mobile station a handoff timeout value within a range of permissible values;

~~assigning at the mobile station a~~ the handoff timeout value ~~within a range of permissible values~~ at the mobile station;

determining if the energy level of the pilot signal drops below a threshold level for a time period exceeding the handoff timeout value; and

executing a handoff operation based on the determination.

59. (previously presented) The method of Claim 58, wherein the range of permissible values is received at the mobile station from a base station.

60. (previously presented) The method of Claim 58, further comprising, receiving from a base station at the mobile station at least one parameter, and determining the range of permissible value based on the parameter.

61. (previously presented) The method of claim 60, wherein the parameter is used to determine a minimum handoff timer value of the range of permissible value and a maximum handoff timeout value of the range of permissible value.

62. (currently amended) The method of Claim 58, further comprising, setting at the mobile station a minimum handoff timer value of the range of permissible value and a maximum handoff timeout value of the range of permissible value.

63. (previously presented) A method for executing a handoff operation in a mobile station, comprising:

scanning a pilot signal of predetermined system frequencies;

measuring an energy level of the pilot signal;

determining by the mobile station a handoff timeout value within a range of permissible values;

determining if the energy level of the pilot signal drops below a threshold level for a time period exceeding the handoff timeout value; and

executing a handoff operation based on the determination.

64. (previously presented) The method of Claim 63, further comprising, receiving from a base station at the mobile station at least one parameter, and determining the range of permissible value based on the parameter.

65. (previously presented) The method of claim 64, wherein the parameter is used to determine a minimum handoff timer value of the range of permissible value and a maximum handoff timeout value of the range of permissible value.

66. (currently amended) The method of Claim 63, further comprising, setting at the mobile station a minimum handoff timer value of the range of permissible value and a maximum handoff timeout value of the range of permissible value.

67. (currently amended) A method for executing a handoff operation in a mobile station, comprising:

scanning pilot signals of predetermined system frequencies;

measuring the energy level of each pilot signal;

selecting at the mobile station a handoff timeout value for each pilot signal within a range of permissible values;

~~assigning at the mobile station a~~ the handoff timeout value for each pilot signal ~~within a range of permissible values~~ at the mobile station;

determining if the energy level of each pilot signal drops below a threshold level for a time period exceeding the handoff timeout value assigned for that pilot signal; and

executing a handoff operation based on the determination.

68. (previously presented) The method of Claim 67, wherein each handoff timeout value is assigned at the mobile station to a respective pilot in the mobile station's active set.

69. (previously presented) A method for executing a handoff operation in a mobile station, comprising:

scanning a pilot signal of predetermined system frequencies;
measuring an energy level of the pilot signal;
determining if the energy level of the pilot signal drops below a threshold level for a time period exceeding a handoff timeout value; and
executing a handoff operation based on the determination;
wherein the handoff timeout value is varied at the mobile station dynamically and autonomously.

70. (previously presented) The method of Claim 69, wherein the handoff timeout value is set within a range of permissible values determined at the mobile station.

71. (new) The method according to Claim 58, further comprising storing the range of permissible values for the handoff timeout values at the mobile station.

72. (new) The method according to Claim 63, further comprising storing the range of permissible values for the handoff timeout values at the mobile station.

73. (new) The method according to Claim 67, further comprising storing the range of permissible values for the handoff timeout values at the mobile station.